CLAIMS

1. An electrical circuit for driving a load, comprising
   - a transistor (12;14;22) having a load current flowing therethrough,
   - a measurement device (30,32) for determining the voltage drop across this transistor (12;14;22),
   - a device (42) for impressing a measuring current into the transistor (12;14;22), and
   - a device for determining the resistance value of the transistor (12;14;22) in its ON state, this resistance value being between a known maximum value (R_{XMAX}) and a known minimum value (R_{XMIN}) and the device for determining the resistance value is provided with
     - a measuring bridge (36) having the transistor (12;14;22) and a known reference resistor (R_R) arranged in its first bridge arm (38) and having three respectively known resistors (R_1,R_2,R_3) arranged in its second bridge arm (40),
     - the first bridge arm (38) comprising a resistor connecting point (K_1) between the reference resistor (R_R) and the transistor (12;14;22), and the second bridge leg (40) comprising a first resistor connecting point (K_2) between the first resistor (R_1) connected to the transistor (12;14;22), and the second resistor (R_2), as well as a second resistor connecting point (K_3) between the second resistor (R_2) and the third resistor (R_3) connected to the reference resistor, and
     - the values of the reference resistor (R_R) of first bridge arm (38) and of the three resistors (R_1,R_2,R_3) of the second bridge arm (40) being selected in such a manner that (i) the potential of the resistor connecting point (K_1) of the first bridge leg (38) is equal to the potential of the first resistor connecting point (K_2) of the second bridge leg (40) if the transistor (12;14;22) is at its minimum resistance value (R_{XMIN}), and (ii) the potential of the resistor connecting point (K_1) of the first bridge leg (38) is equal to the potential of the second resistor connecting point (K_3) of the sec-

ond bridge leg (40) if the transistor (12;14;22) is at its maximum resistance value (R_{XMAX}).

2. The electrical circuit according to claim 1, characterized in that the transistor (12;14;22) is a polarity protection transistor or a transistor switching the load (16).

3. The electrical circuit according to claim 1 or 2, characterized by a device (32,50,52) for measuring the difference voltages between the resistor connecting points (K_1,K_2,K_3).

4. The electrical circuit according to any one of claims 1 to 3, characterized by a multiplexer (52) for selectively passing on one of the measurement voltages to a voltage measuring device (50).

5. The electrical circuit according to claim 1 or 2, characterized by a device for measuring individual voltages between respectively the resistor connecting points (K_1,K_2,K_3) and a common reference potential, and for subtraction of respectively two measured individual voltages.

6. The electrical circuit according to any one of claims 1 to 5, characterized by an A/D converter (32) for measurement of the voltages.

7. The electrical circuit according to claim 6, characterized by a switch (34) at the input of the A/D converter (32), for using the A/D converter (32) on the one hand for voltage measurements and on the other hand for measurements of the voltage drop across the transistor (12;14;22) of which the resistance value (R_X) has to be determined for thus obtaining the load current.

8. The electrical circuit according to any one of claims 1 to 7, characterized by a control unit (18) provided to control the device (42) for impressing a measuring current into the transistor (12;14;22) and, if

provided, of the switch (34), of the A/D converter (32), of the multiplexer (52), of a polarity protection transistor and of a load-switching transistor.

9. The electrical circuit according to any one of claims 1 to 8, characterized by a temperature sensor for detecting the ambient temperature of the transistor (12;14;22) of which the resistance value (R_X) has to be determined.